

N65928.AR.000573
NTC ORLANDO
5090.3a

APPROACH FOR EVALUATION OF STUDY AREA WITH POLYAROMATIC
HYDROCARBONS GREATER THAN SCREENING CRITERIA NTC ORLANDO FL
12/20/1996
ABB ENVIRONMENTAL



00781

December 20, 1996

8519.290

Commanding Officer
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
Charleston, SC 29419-9010

Attn: Mr. Wayne Hamsel, Code 18B7

Subject: Approach for Evaluation of Study Areas with PAH Concentrations Greater than Screening Criteria
Study Areas 16, 17, 18, 21, 23, 26 (Background Surface Soil Samples), 27, 39, 40, and 50

Dear Wayne:

Due to OPT decisions at some of the study areas (SAs) which have undergone site screening, ABB-ES has been tasked with completing additional site screening activities to evaluate the risk associated with detections concentrations of certain compounds. This information will assist the OPT in making technically sound and environmentally responsible decisions regarding the remediation and transfer of various parcels at NTC, Orlando.

This letter presents ABB-ES's suggested approach for evaluating polycyclic aromatic hydrocarbon (PAH) concentrations greater than screening criteria in surface soils, subsurface soils and sediment at NTC, Orlando (PAH detections have not occurred in other environmental media at NTC). The approach considers both EPA and FDEP concerns, and also considers approaches to site screening that have been used at other military bases in Florida. The general approach is followed by discussions for each site, which include the objectives and rationale for additional sampling, and recommendations of specific sample locations to fill data gaps. After OPT review and discussion, the contents of this letter will be implemented as additional PAH site screening activities. The results will be incorporated into environmental site screening reports for each affected study area.

BACKGROUND. During data evaluation of the analytical results and preparation of the Site Screening Report for the Group III Study Areas at McCoy Annex (Study Areas 16 through 26), it became apparent that PAH concentrations greater than applicable Florida screening criteria at several study areas would prevent transfer until additional screening data were obtained. Accordingly, ABB-ES's recommendations in the Group III report included further screening at Study Areas 16, 17, 18, 23, and 26 for PAHs (although other contaminants at some of these sites were also of concern). The OPT subsequently added Study Areas 21, 27, 39, 40, and 50 due to surface soil samples where PAH

ABB Environmental Services Inc.

Sponsor
Special Olympics
World Games
Connecticut 1995



1080 Woodcock Road, Suite 100
St. Paul Building
Orlando, Florida 32803

Telephone (407) 895-8845
Fax (407) 896-6150

concentrations exceeded residential Florida SCGs (but not industrial SCGs). Table 1 presents a summary of each affected study area.

OBJECTIVE. The overall objective of any additional site screening activities is to sufficiently evaluate the PAHs in soils at the subject study areas so that a risk characterization can be completed resulting in one of the three following recommendations:

- a FOSL/FOST with no requirement for further evaluation
- a FOSL/FOST with institutional controls to limit exposure
- a limited remedial action

AN APPROACH FOR EVALUATING PAH CONCENTRATIONS GREATER THAN SCREENING CRITERIA IN SOILS.

Field Investigation The suggested approach is intended to provide additional information concerning the maximum concentration of PAHs present in soils at each affected site, as well as to provide a statistically representative characterization of the distribution of PAH compounds. Risks associated with detected PAH concentrations will be characterized based on "average" conditions at each SA. Results of the focused risk assessment will be the basis for determination of a recommendation for a FOSL/FOST, or the need for remediation.

To accomplish this, an adequate data base for each site must be compiled. All of the subject sites have only site screening data, which, by definition, were collected at locations where contaminants were most likely. The sampling data sets are therefore "biased" and do not represent "average" site conditions. Risk characterization of PAHs will require additional sampling at each of the subject study areas to obtain approximately five well-distributed samples per acre, including previous sample locations.

There are two types of occurrences of PAHs in concentrations exceeding human health risk screening values in the subject SAs. One type involves surface runoff pathways from paved areas or specific drainage points to discharge areas (generally drainage ditches). This occurrence is likely to result in an elongated contaminant distribution pattern.

The second type involves unknown distribution of PAH concentrations greater than screening criteria because a "point source" could not be identified (e.g., SA 17 and SA 26 [background surface soil sample locations]). The difference in the types of occurrences will be accounted for by differences in the design of the sampling grids for each area.

The suggested field investigation approach involves four steps:

1. Establish a preliminary sampling grid of appropriate size and node spacing at each area, taking into consideration existing sample locations.
2. Collect a surface soil (0-12 inches) and a subsurface soil (2-3 ft) sample from each grid node. If a subsurface sample has PAH concentrations exceeding guidance concentrations, deeper

samples may need to be collected.

3. Submit samples for laboratory analysis via USEPA Method Modified 8270 - GCMS/SIMS (PAHs only).
4. In some instances, PAH delineation of a point source is recommended in addition to general site characterization. In these cases, using field screening analytical methods (i.e., immunoassay techniques), determine the presence or absence and semiquantitative value for total PAHs in each of the samples (submit 10% of immunoassay samples for laboratory analysis (Modified 8270 - GCMS/SIM) for confirmation.

The approach to PAH delineation (item 4, above) is similar to the approach used to evaluate UST sites in Florida, although the choice of screening technologies differs. Whereas an FID is used to evaluate releases from tank sites, the use of immunoassays is proposed for PAHs. An FID is an appropriate screening tool for compounds with relatively high volatility (PAHs have relatively low volatility). The immunoassay technology provides a fast, relatively inexpensive, and accurate indication of the presence or absence of PAHs, and provides semi-quantitative results.

Sample patterns in point source areas will be comprised of a series of grid nodes oriented along the drainage axis with lateral nodes as appropriate for characterization and confirmation. The starting point for any sampling grid will be the existing data points of concern with sampling extending from there. For areas where discharge is to a drainage feature (ditch, retention pond), sampling of sediments in the ditch or pond in general is NOT recommended, because those sediments are not available to human exposure. As a guideline, for each study area, five samples per acre (including existing sample locations) will be collected and used in the risk characterization. This number may increase, depending on the perceived hazard of the area. Node spacing and sample depths will be modified in accordance with site conditions and existing data to meet the objectives of sampling.

Risk Characterization When data gaps have been filled, the risk characterization for each study area will be implemented. Duplicate samples will be averaged together, with those contaminants not detected set equal to one-half their sample quantitation limit. Exposure point concentrations (EPCs) will be represented by the arithmetic average of all samples, with those contaminants not detected set equal to one-half their sample quantitation limit. Because cancer risks and Hazard Index calculations theoretically evaluate risks for average concentrations, this approach is consistent with the intent of the risk assessment guidance.

Because of the strong bond that exists when PAHs adsorb to soil particles, the extraction procedure during laboratory analysis is complex and results in a higher quantitation limit than for aqueous media. The inherently higher detection limit is reflected in the contract required quantitation limit (CRQL) for CLP-qualified vendors. The Florida SCGs and EPA RBCs are significantly lower for several PAHs than the CRQL. The manner in which such compounds are handled during a risk characterization is complex and sometimes contradictory due to existing guidance. For example, for nondetections of Benzo(a)pyrene (B[a]P), risk guidance requires that the B(a)P concentration for that sample be set equal to one-half its sample quantitation limit. The CRQL for B(a)P is 330 µg/kg. One-half the quantitation limit is 165 µg/kg. The SCG for B(a)P is 100 µg/kg, and the RBC is 88 µg/kg. Therefore, the risk assessment is required to introduce a concentration for a nondetection that is nearly twice the action level, which by definition exceeds the Florida maximum acceptable cancer risk of 1×10^{-6} .

In order to eliminate artificial risk due to the use of CRQLs, ABB-ES proposes to reevaluate the existing laboratory analytical database. We will request method detection limits (MDLs) for each PAH compound from which an MDL-based sample quantitation limit (SQL) can be calculated. The MDL-based SQL is the quantitation limit stipulated in EPA risk assessment guidance documents, and is the parameter proposed for use in the risk characterizations at NTC, Orlando.

For all additional sampling, ABB-ES proposes to use an analytical procedure (USEPA Method Modified 8270 - GCMS/SIMS) that will yield detection limits in the low parts per billion or tens of parts per billion for many PAHs.

ADDITIONAL SITE SCREENING ACTIVITIES FOR PAH EVALUATION.

Study Area 16 ABB-ES recommends that Study Area 16 not be further investigated for PAH concentrations greater than screening criteria at this time, as it is still active as a motor pool. PAH characterization could be implemented when the primary use of the parcel changes. Site screening data is as follows.

There are PAH exceedances in 6 out of 16 surface soil sample locations (Figure 1); no PAH exceedances in subsurface soil samples (7 samples in 7 locations); and PAH exceedances in 1 out of 2 sediment sample locations. The samples for the various media span a distance of more than 700 feet.

Of the 6 surface soil exceedances, 4 (16S009D, 16S011, 16S013, and 16S014) exceed industrial RBCs for one or more PAHs.

Of the 6 subsurface soil samples (16B001, 16B002, 16B006, 16B007, 16B017, and 16B021), no detections of PAHs occurred.

Of the 2 sediment samples, PAH exceedances occurred in only 1 sample for a single compound, fluoranthene (detection was below CRDL).

ABB-ES concludes that multiple samples exceed industrial RBCs at SA 16 and that further characterization is appropriate. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples be collected at the sampling locations shown on Figure 2. The augmented data set will fill existing data gaps and better characterize general site conditions. Samples will be submitted for PAH analysis. Results will be used in a risk characterization for both residential and industrial future use scenarios.

Study Area 17 Resampling results for well OLD-17-04 indicate that the chlorinated solvent concentrations (TCE, vinyl chloride, and cis-1,2-dichloroethene) have been confirmed and may be significantly higher than previously reported (resampling results on 6/18/96 indicate the following concentrations: TCE at 100 µg/ℓ; VC 610 at µg/ℓ; DCE at 600 µg/ℓ). Accordingly, ABB-ES recommends additional site screening activities (possibly TerraProbe or cone penetrometer investigations) to delineate a potential chlorinated solvent plume at SA 17. Because of the possibility that SA 17 could become an OU, ABB-ES recommends that Study Area 17 not be further

investigated for PAH concentrations greater than screening criteria at this time.

If a decision is made to resolve the PAH issue at SA 17, ABB-ES notes that there are PAH exceedances in 2 out of 9 surface soil sample locations (Figure 3), 3 out of 24 subsurface soil sample locations, and 3 out of 4 sediment sample locations. The samples for the various media are separated by more than 700 feet.

Of the two surface soil exceedances, one (17B035) is an order of magnitude more contaminated than the other (17B036). 17B036 is marginally above SCGs for one PAH and residential RBCs for two PAHs.

Of the 3 subsurface soil exceedances, only one (17B013) has PAH concentrations which exceed industrial RBCs (benzo[a]pyrene and dibenz[a,h]anthracene).

Of the 3 sediment samples, none exceed industrial RBCs.

ABB-ES concludes that one surface soil sample and one subsurface soil sample are driving overall environmental concerns at SA 17. A deed restriction limiting future use to industrial would likely make this site NFA pending results of additional sampling and a risk characterization, below. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 4 will fill existing data gaps and better characterize general site conditions. Samples will be submitted for PAH analysis. Results will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 18 In SA 18, there are PAH exceedances in 4 out of 7 surface soil sample locations, no subsurface soil samples (5 locations), and no groundwater samples (4 monitoring wells). Only one of the surface soil samples had PAH exceedances above industrial RBCs and SCGs (18S008, benzo[a]pyrene only). All surface soil samples were collected at runoff points.

ABB-ES concludes that one surface soil sample is driving overall environmental concerns for PAHs at SA 18 (Figure 5). A deed restriction limiting future use to industrial would likely make this site NFA pending results of additional sampling and a risk evaluation, below. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 5 will fill existing data gaps and better characterize general site conditions. Results will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 21 In SA 21, there are PAH exceedances in 1 out of 9 surface soil samples (8 locations). Only one PAH compound in 21S005 (benzo[a]pyrene) exceeds industrial RBCs.

ABB-ES concludes that one compound in one surface soil sample is driving overall environmental concerns for PAHs at SA 21 (Figure 6). A deed restriction limiting future use to industrial would

likely make this site NFA for PAHs pending results of additional sampling and a risk evaluation, below. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 6 will fill existing data gaps and better characterize general site conditions. Results will be used in a risk characterization for both residential and industrial future use scenarios.

Study Area 23 In SA 23, there are PAH exceedances in the only surface soil sample (23S005). Five PAH compounds exceed industrial RBCs (Figure 7).

ABB-ES concludes there is insufficient data to conclude that there is not a problem with PAHs at this site. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs pending results of additional sampling and a risk evaluation, below. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 7 will fill existing data gaps and better characterize general site conditions. Results will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 26 In the two background surface soil samples collected near SA 26 (ORS009 and ORS016, Figure 8), there are PAH exceedances (RBCs and Florida SCGs) in both samples for the following compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. There was also an exceedance in one sample (ORS016) for dibenz(a,h)anthracene.

ABB-ES concludes there is insufficient data to conclude that there is not a problem with PAHs at this site. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs pending results of additional sampling and a risk evaluation, below. However, the property is currently listed in the BCP as residential.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 8 will fill existing data gaps and better characterize general site conditions. Results will be used in a risk characterization for both residential and industrial future use scenarios. In addition, ABB-ES recommends that delineation for PAHs be completed in the immediate vicinity of each original surface soil sample (10% laboratory confirmation) as indicated on Figure 8.

Study Area 27 In SA 27, there are PAH exceedances in 1 out of 9 surface soil sample locations (Figure 9). Only one PAH compound in 27S007 (benzo[a]pyrene) exceeds industrial RBCs.

There were no detections of PAHs in subsurface soil samples (3 locations) in SA 27.

ABB-ES concludes that one compound in one surface soil sample is driving overall environmental concerns for PAHs at SA 27. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs pending results of a risk evaluation, below. The property is currently listed in the BCP as "retail", consistent with a future industrial use scenario.

ABB-ES recommends that no additional samples will be needed to fill data gaps. The existing data

base will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 39 In SA 39, there are PAH exceedances, primarily B(a)P, in 4 out of 16 surface soil sample locations (Figure 10). There are no exceedances for industrial RBCs, although the reuse plan currently calls for this area to be a combination of office and residential. There were no exceedances of PAHs (or other compounds) in any of the five subsurface soil samples collected.

ABB-ES concludes that B(a)P in four surface soil samples is driving overall environmental concerns at SA 39. The property is currently listed in the BCP as "office and residential", consistent with a future residential reuse scenario. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs pending results of a risk evaluation, below.

ABB-ES recommends that 63 additional surface soil samples (no subsurface soil samples) be collected to fill data gaps (Figure 11). The resulting data base will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 40 In SA 40, there is one PAH exceedance of B(a)P out of 4 surface soil sample locations (Figure 10). That PAH occurrence did not exceed the industrial RBC, although the reuse plan currently calls for this area to be a combination of office and residential. There were no exceedances of other compounds in either of two subsurface soil samples collected.

ABB-ES concludes that B(a)P in the single surface soil sample is driving overall environmental concerns at SA 40. The property is currently listed in the BCP as "office and residential", consistent with a future residential reuse scenario. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs pending results of a risk evaluation, below.

ABB-ES recommends that 24 additional surface soil samples (no subsurface soil samples) be collected to fill data gaps (Figure 11). The resulting data base will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

Study Area 50 In SA 50, there are PAH exceedances in 2 out of 11 surface soil sample locations (Figure 3). There are no exceedances for industrial RBCs.

There were no detections of PAHs in subsurface soil samples (7 samples in 5 locations) in SA 50.

ABB-ES concludes that one compound (benzo[a]pyrene) in two surface soil samples is driving overall environmental concerns for PAHs at SA 50. A deed restriction limiting future use to industrial would likely make this site NFA for PAHs. However, additional sampling and a risk evaluation may be appropriate for SA 50. The property is currently listed in the BCP as "multimodal", consistent with a future industrial use scenario.

ABB-ES recommends that additional samples collected at the sampling locations shown on Figure 4 will fill existing data gaps and better characterize general site conditions. Results will be used in a risk characterization for both residential and industrial future use scenarios. The risk characterization may conclude that a deed restriction is not necessary.

SUMMARY OF ADDITIONAL SITE SCREENING ACTIVITIES FOR PAH EVALUATION.

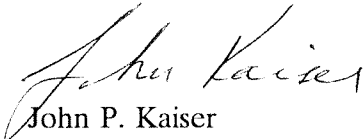
The additional screening activities at each of the study areas, above, are summarized on Table 2. ABB-ES has proposed an additional 87 surface soil samples (Study Areas 39 and 40), 59 surface soil/subsurface soil pairs (118 samples at 59 locations), 7 sediment samples, and approximately 23 immunoassay samples (10% confirmation). In addition, there will be an appropriate number of QA/QC samples as required.

As we discussed at the OPT meeting on December 10, 1996, "hot spot" criteria, determination, and resultant actions will be handled on a case-by-case basis.

Following discussions of any comments or corrections at the next scheduled OPT meeting, our intent is to plan and accomplish this work package. Should you have any questions or comments, please call Rick Allen at (904) 269-7012 or me at (407) 895-8845.

Very Truly Yours,

ABB ENVIRONMENTAL SERVICES, INC.



John P. Kaiser
Installation Manager

cc: Nancy Rodriguez, USEPA Region IV
John Mitchell, FDEP
Barbara Nwokike, SOUTHDIV
Nick Ugolini, SOUTHDIV
Mac McNeil, Bechtel
LT Gary Whipple, Public Works Officer
Steve McCoy, Brown & Root
File

Summary of Potential PAH-contaminated Sites

NTC, Orlando
Site Screening Reports

Study Area	Screening Event	Nature of Occurrence	Figure/Table Reference	Proposed Land Use (from BRAC Cleanup Plan, 2/96)
Study Areas where recommendations have been reviewed by the EPA and FDEP				
16 Army Motor Pool Complex Bldgs 7168, 7171, 7172, and former 7175 McCoy Annex	Group III Study Areas, Draft Report, December 1995. Final Report pending OPT signatures.	PAHs detected in several surface soil and sediment samples primarily associated with runoff points. Area had been recommended for transfer to UST program. Motor pool activity continues.	Chapter: 17 Figure: 17-2 Table: Appendix O, O-16-1, O-16-5	multi-modal transportation and related services
17 Defense Property Disposal Office, and Bldgs. 7178, 7190, 7191, and 7193 McCoy Annex	Group III Study Areas, Draft Report, December 1995	PAHs detected in one surface soil samples (17B035), two subsurface soil samples (17B013 and 17B016), and one sediment sample (17D028) collected from the motor pool area. Lesser concentrations of PAH detected in two surface soil samples (17B025 and 17B036).	Chapter: 18 Figure: 18-1 Tables: Appendix O, Tables O-17-1, O-17-2, and O-17-5	multi-modal transportation facility and related services
18 Bldgs. 7179 and 7182, and Housing Office McCoy Annex	Group III Study Areas, Draft Report, December 1995	PAHs were detected in surface soil samples at runoff points from the paved surfaces.	Chapter: 19 Figure: 19-1 Table: Appendix O, Table O-18-1	multi-modal transportation and related services
21 Maintenance Shop, Bldg 7203 McCoy Annex	Group III Study Areas, Draft Report, December 1995	PAHs detected in one surface soil sample at concentrations exceeding residential RBCs and Florida SCGs.	Chapter: 22 Figure: 22-1 Table: Appendix O, Table O-21-1	recreation
23 Former Swimming Pool, UNF-2 McCoy Annex	Group III Study Areas, Draft Report, December 1995	PAHs detected in one surface soil sample collected from immediately below the effluent pipe for the swimming pool. Drain pipe may have been for the swimming pool, and may now continue to function as a drain for rainwater that accumulates within the mound during rain events. Source of PAHs may be present within the mound.	Chapter: 24 Figure: 24-1 Table: Appendix O, Table O-23-1	National Guard - training and education

Summary of Potential PAH-contaminated Sites

NTC, Orlando
Site Screening Reports

Study Area	Screening Event	Nature of Occurrence	Figure/Table Reference	Proposed Land Use (from BRAC Cleanup Plan, 2/96)	
26	Family Camp, Former Airstrip McCoy Annex	Group III Study Areas, Draft Report, December 1995 and Background Sampling Report, Final, August 1995	Elevated concentrations of PAHs were detected in background surface soil samples (samples S09 and S16), which were collected near this study area.	<u>Group III Report:</u> <i>Chapter: 27</i> <i>Figure: 27-1</i> <i>Tables: Appendix O, Table O-26-1</i> <u>Background Report</u> <i>Chapter: 5</i> <i>Figure: 3-3</i> <i>Tables: 5-2</i>	Army Reserve - training and education
Study Areas where recommendations have <i>not</i> been formally reviewed by EPA and DEP					
27	Bldgs. 111, 2010, and 2073 Main Base	Technical Memorandum, Study Area 27 September 1996	PAHs detected in one surface soil sample and its duplicate.	<u>Tech Memo:</u> Figure 3	retail
39	Main Base, Coal Storage Yard and Contractor Maintenance Yard	Technical Memorandum, Study Areas 39, 40, and 45, June 1996	PAHs with exceedances of regulatory criteria in 4 of 16 surface soil locations	<u>Tech Memo:</u> Attachment B-1	office and residential
40	Main Base, Bottle Landfill	Technical Memorandum, Study Areas 39, 40, and 45, June 1996	PAHs with exceedances of regulatory criteria in one of four surface soil locations	<u>Tech Memo:</u> Attachment B-1	office and residential
50	Former Civil Engineering Yards McCoy Annex	Technical Memorandum, Study Area 50 September 1996	Benzo(a)pyrene was detected in two surface soil samples (50B00301 and 50B00401) at concentrations greater than the residential SCG, but less than the industrial SCG.	<u>Tech Memo:</u> Figure 3	multi-modal and related services

Summary of Additional Site Screening Activities

NTC, Orlando
Site Screening Reports

Study Area	Surface/Subsurface Soil Samples (S/B)	Sediment Samples (D)	Immunoassay Samples
Study Areas where additional site screening for PAHs recommendations have been reviewed by the EPA and FDEP			
16 Army Motor Pool Complex, McCoy Annex	19(S)/19(B)	4(D)	--
17 DPDO, and Bldgs. 7178, 7190, 7191, and 7193 McCoy Annex	15(S)/15(B)	3(D)	--
18 Bldgs. 7179 and 7182, and Housing Office McCoy Annex	18(S)/18(B)	--	--
21 Maintenance Shop, Bldg 7203 McCoy Annex	3(S)/3(B)	--	--
23 Former Swimming Pool, UNF-2 McCoy Annex	6(S)/6(B)	--	7
26 Family Camp, Former Airstrip McCoy Annex	8(S)/8(B)	--	16
Study Areas where recommendations have <i>not</i> been formally reviewed by EPA and DEP			
27 Bldgs. 111, 2010, and 2073 Main Base	--	--	--
39 Main Base, Coal Storage Yard and Contractor Maintenance Yard	7(S)	--	63
40 Main Base, Bottle Landfill	2(S)	--	24
50 Former Civil Engineering Yards McCoy Annex	(combined with SA 16)	(combined with SA 16)	--
TOTALS	68(S)/59(B)	7(D)	110

FIGURES

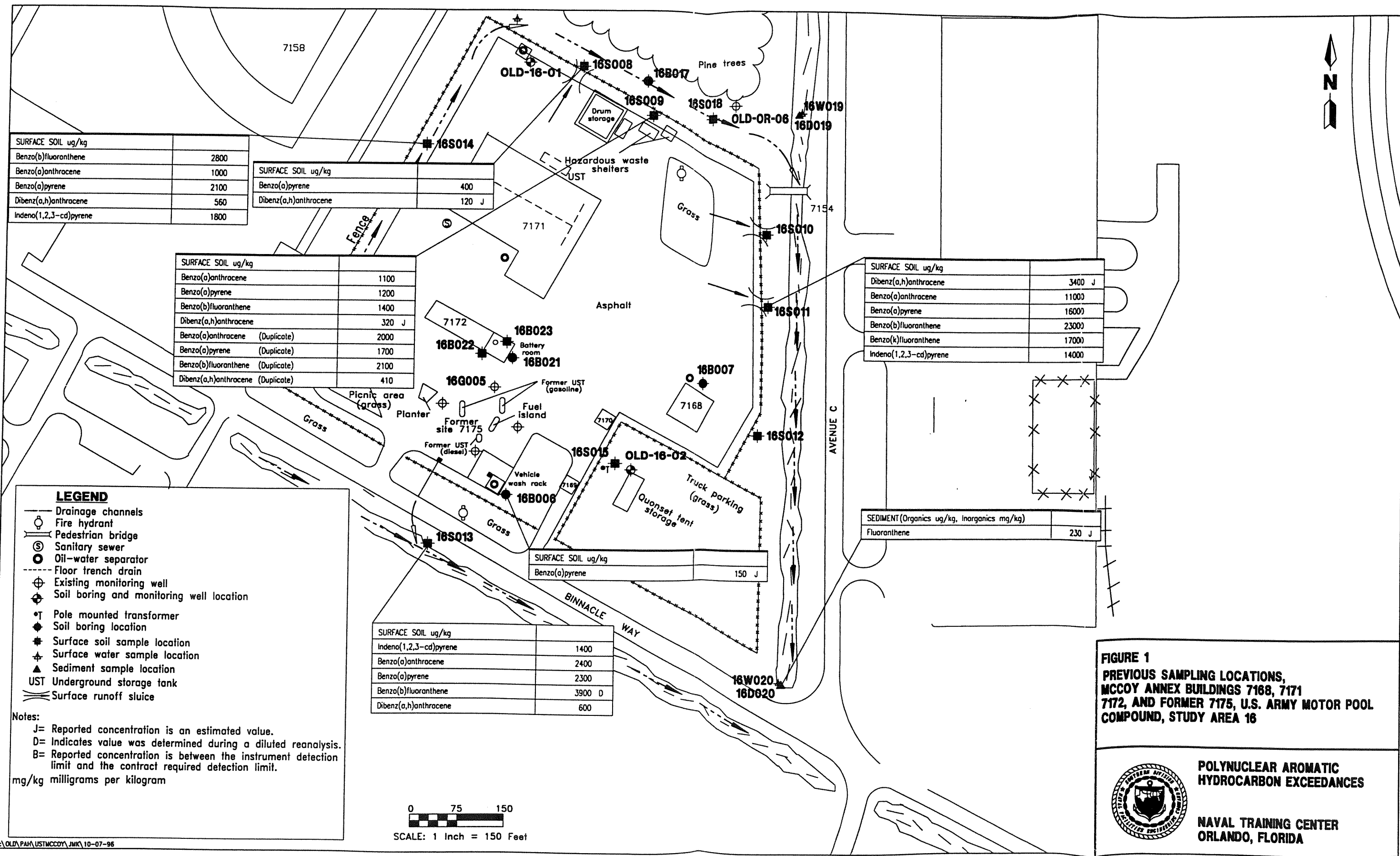
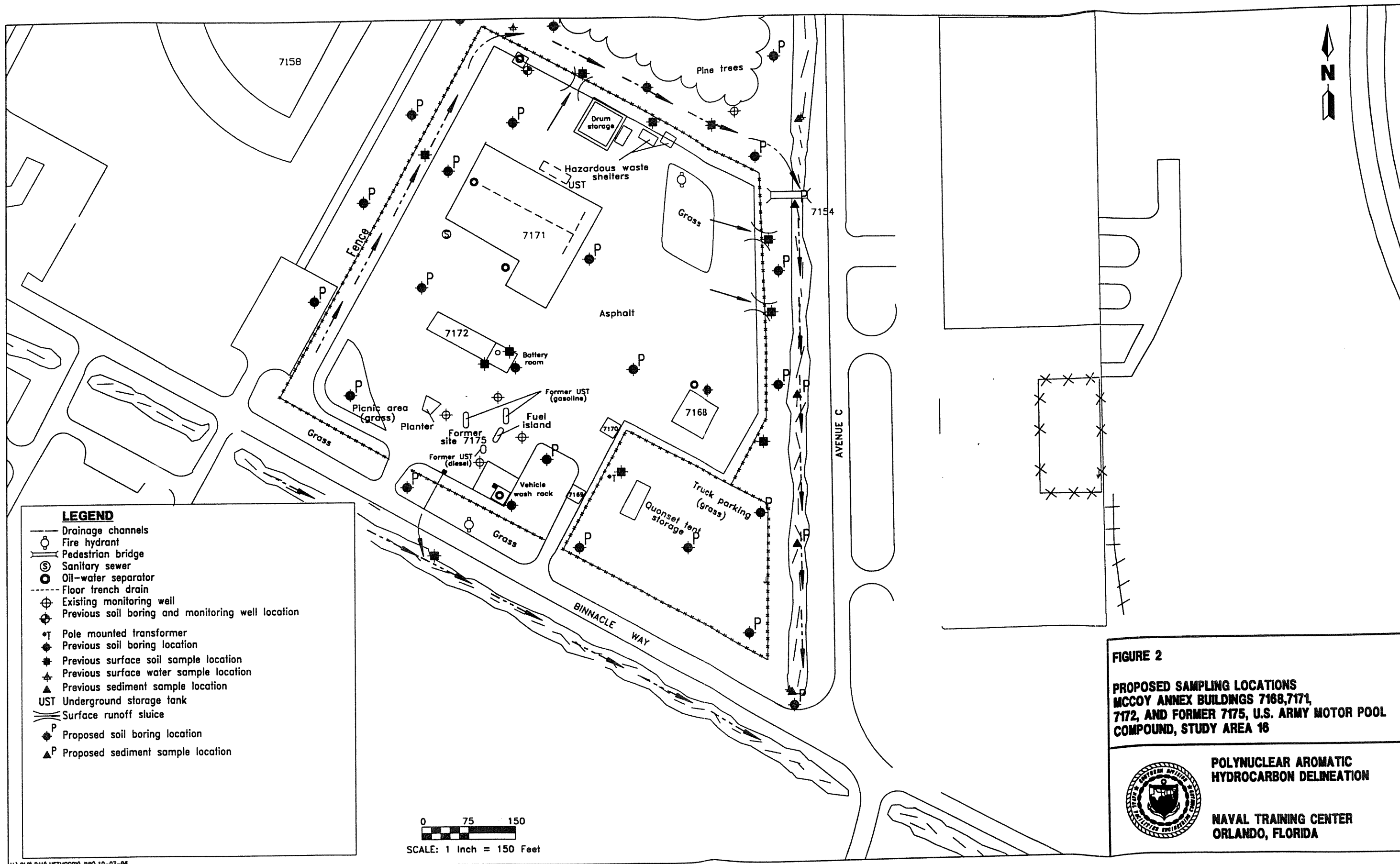


FIGURE 1
PREVIOUS SAMPLING LOCATIONS,
MCCOY ANNEX BUILDINGS 7168, 7171
7172, AND FORMER 7175, U.S. ARMY MOTOR POOL
COMPOUND, STUDY AREA 16



POLYNUCLEAR AROMATIC
HYDROCARBON EXCEEDANCES

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



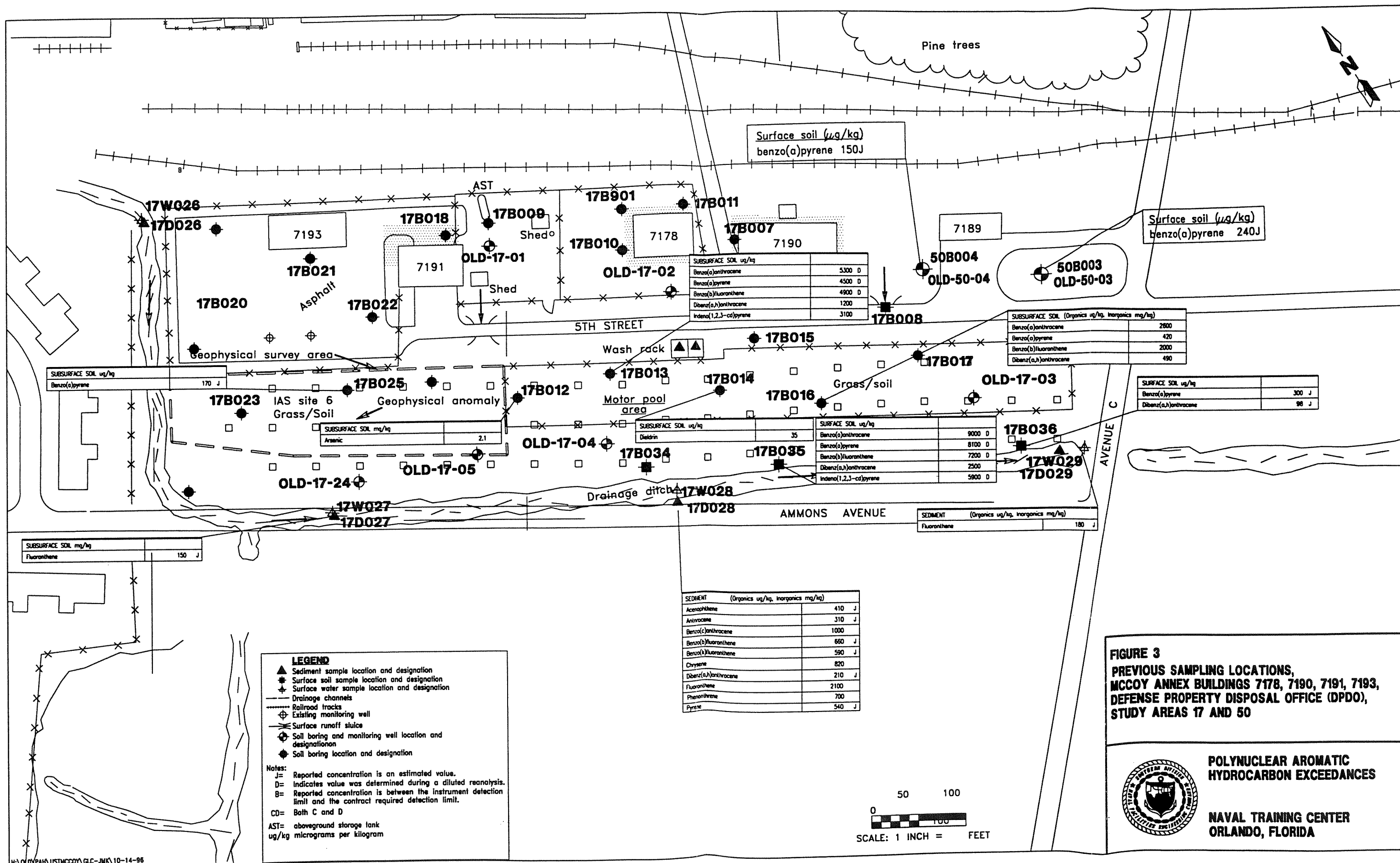
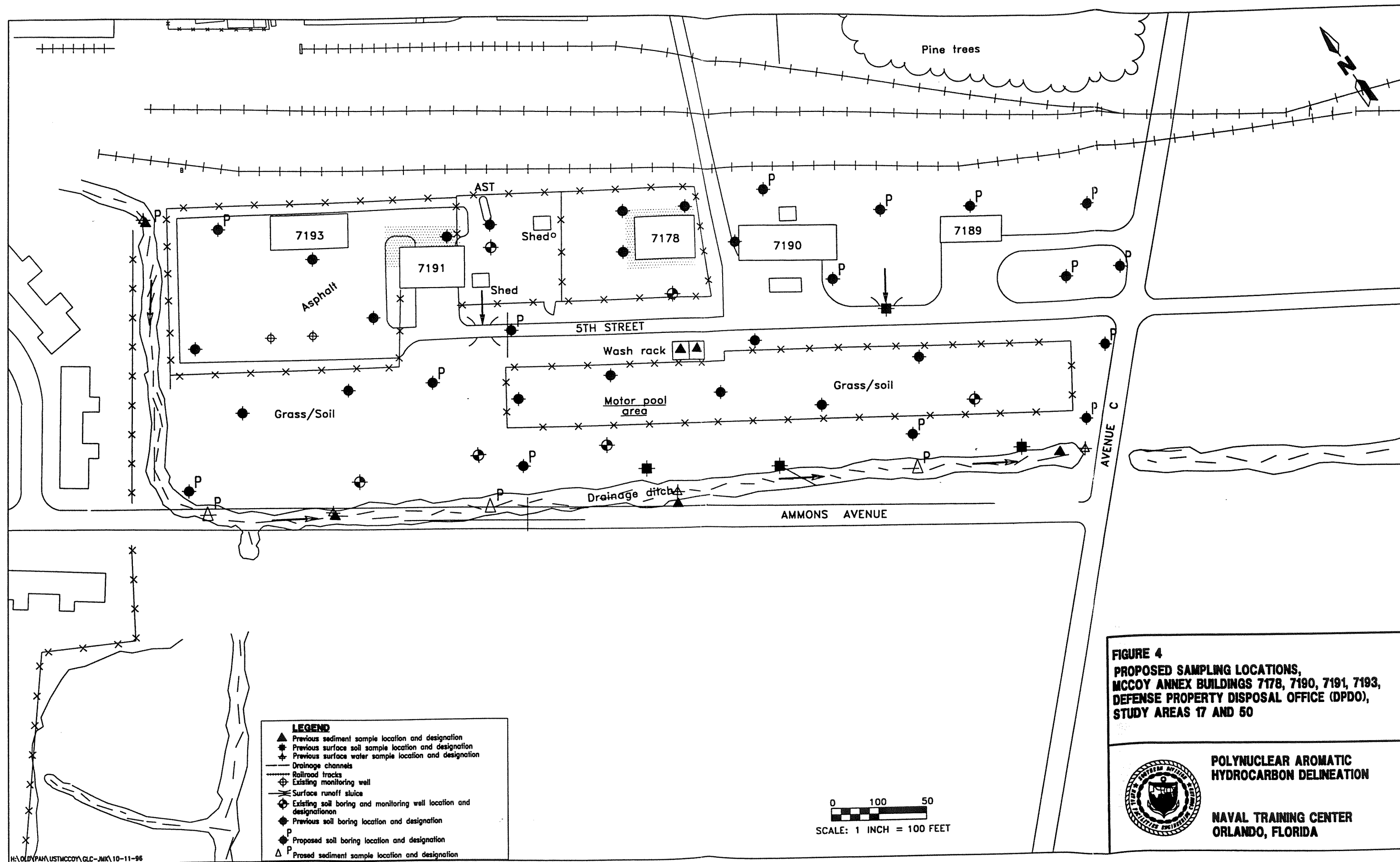


FIGURE 3
PREVIOUS SAMPLING LOCATIONS,
MCCOY ANNEX BUILDINGS 7178, 7190, 7191, 7193,
DEFENSE PROPERTY DISPOSAL OFFICE (DPDO),
STUDY AREAS 17 AND 50



POLYNUCLEAR AROMATIC
HYDROCARBON EXCEEDANCES

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



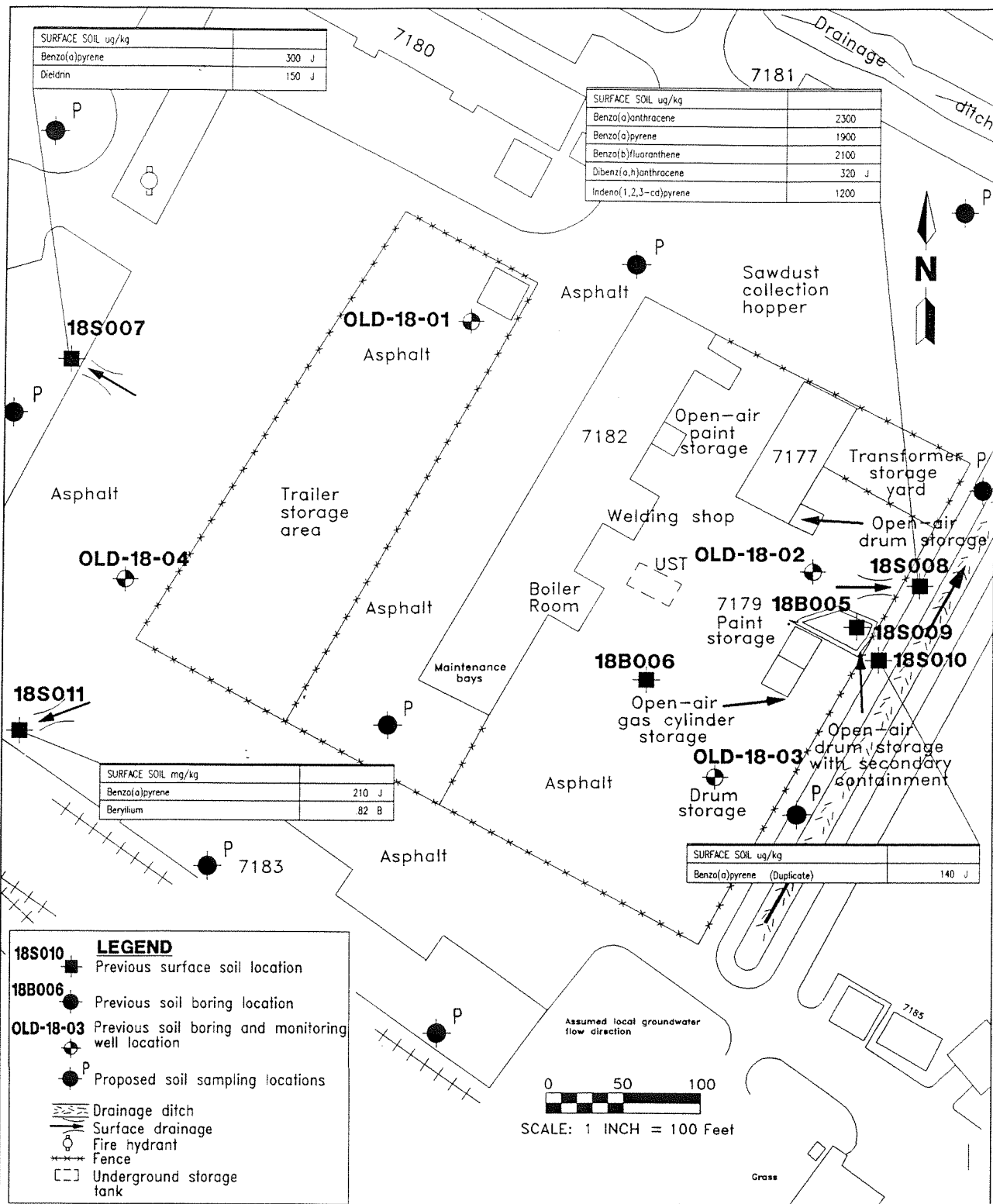
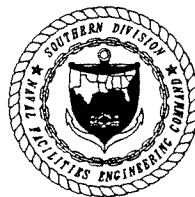
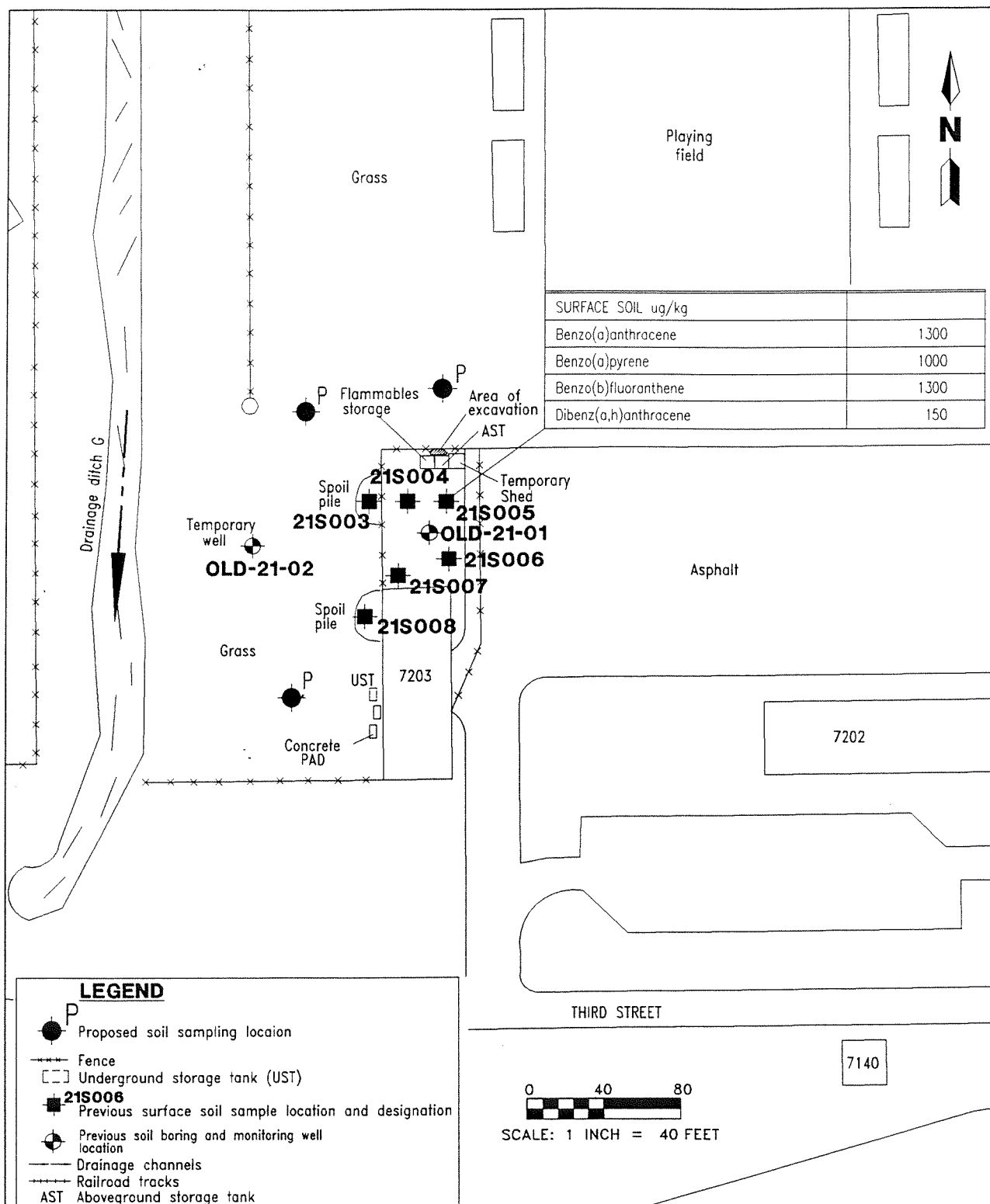


FIGURE 5
PROPOSED SAMPLING LOCATIONS,
MCCOY ANNEX
BUILDINGS 7182, 7179, HOUSING OFFICE,
STUDY AREA 18



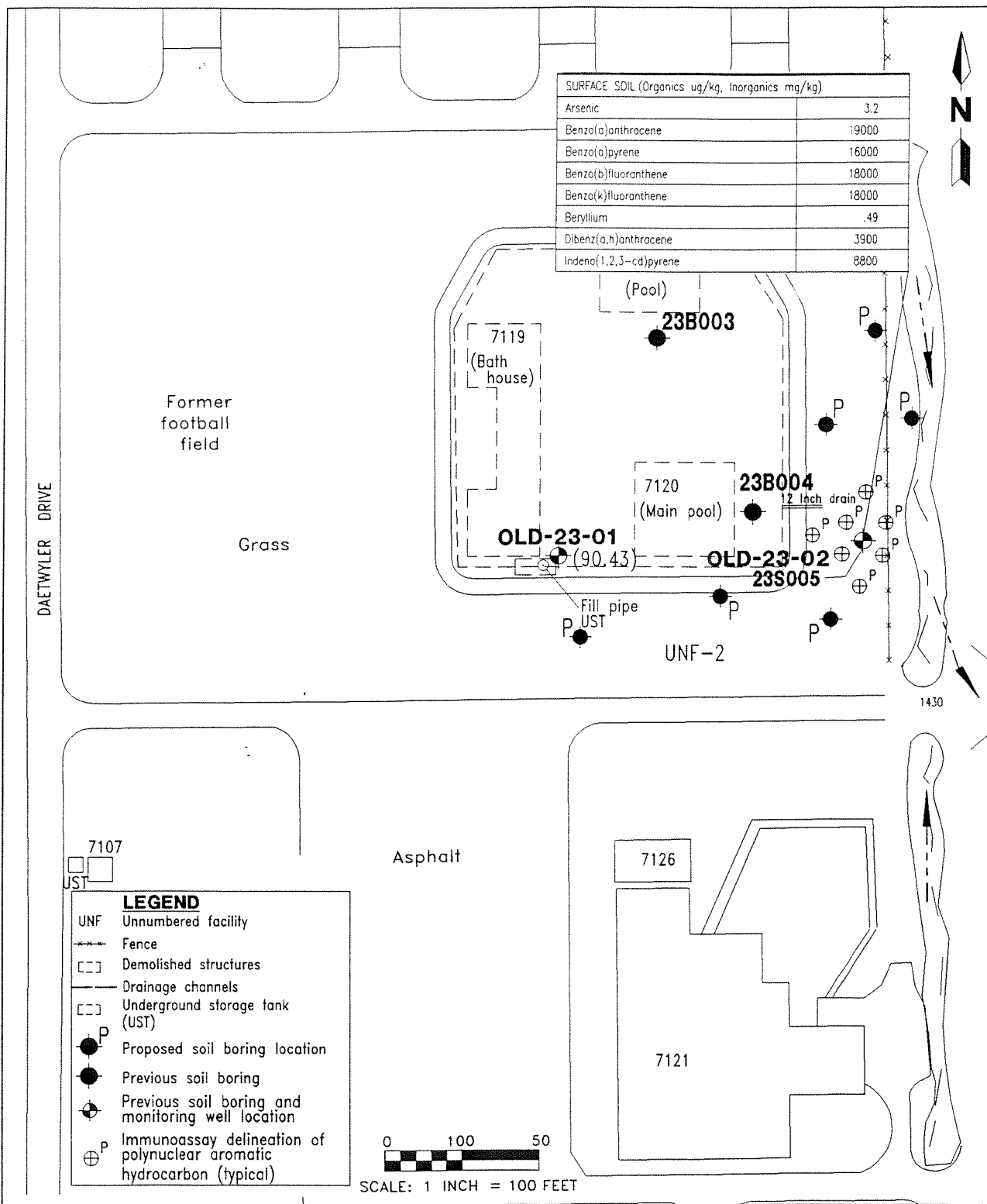
POLYNUCLEAR AROMATIC
HYDROCARBON
EXCEEDANCES AND DELINEATION

NAVAL TRAINING CENTER
ORLANDO, FLORIDA



**POLYNUCLEAR AROMATIC
HYDROCARBON
EXCEEDANCES AND DELINEATION**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**



**POLYNUCLEAR AROMATIC
HYDROCARBON
EXCEEDANCES AND DELINEATION
NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

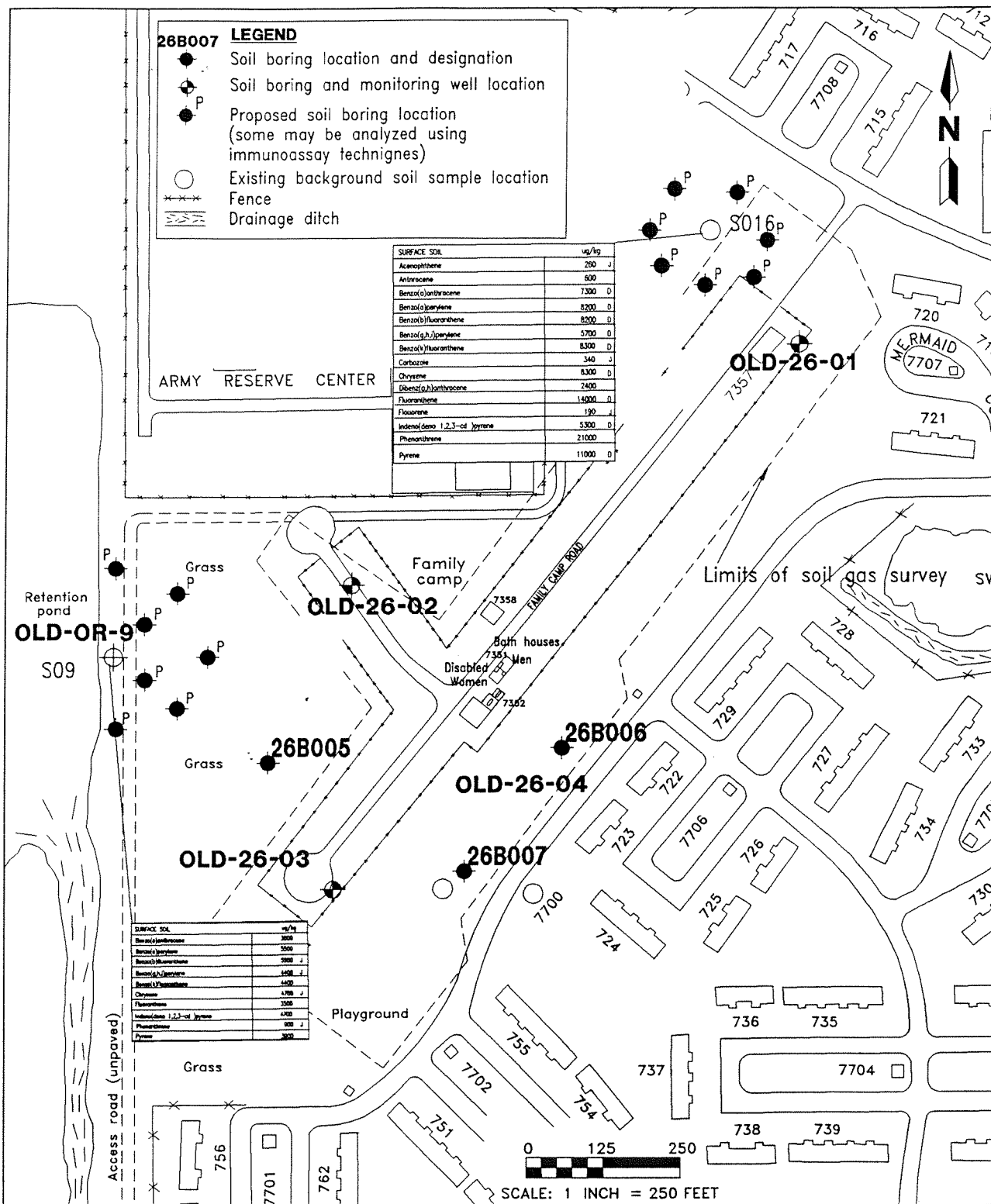


FIGURE 8
SOIL BORING AND MONITORING WELL LOCATIONS
MCCOY ANNEX BACKGROUND LOCATIONS
AND STUDY AREA 26



POLYNUCLEAR AROMATIC
HYDROCARBON EXCEEDANCES
AND DELINEATION

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

